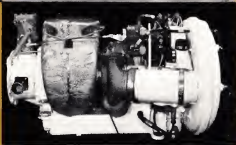
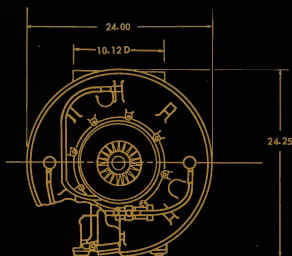


# **BOEING MODEL 502 INDUSTRIAL GAS TURBINES**

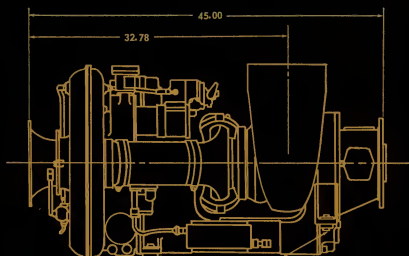


**200 CONTINUOUS HORSEPOWER**





FRONT END VIEW



LEFT SIDE VIEW

### STANDARD EQUIPMENT

Gas producer governor  
Oil pumps and filter  
Ignition coil and plugs  
24-volt starter  
Automatic start control  
Air inlet bell  
Reduction gears, 7.21:1 ratio  
Exhaust gas thermocouples  
High exhaust gas temperature sensor  
High oil temperature sensor  
Low oil pressure sensor  
Operating manual

### OPTIONAL EQUIPMENT

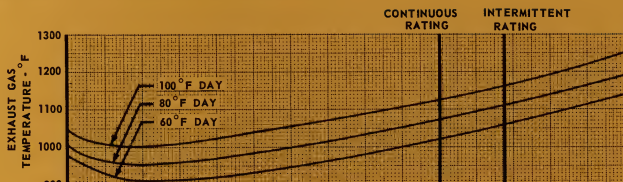
Inlet silencer  
Gas producer tachometer  
Output section tachometer  
Engine mounts  
Double outlet exhaust collector  
Gear ratios 3.43:1, 5.04:1 and 8.9:1  
Output section accessory drive  
Output section governor  
Oil cooler  
Oil temperature gauge  
Fuel boost pump and filters (502-21 only)

## SPECIFICATIONS

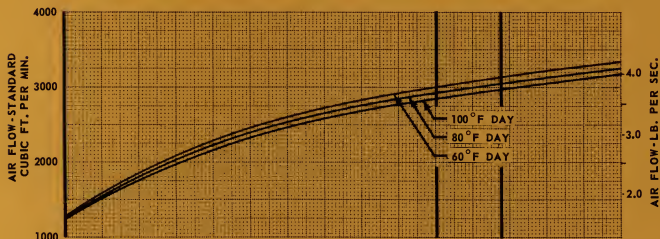
RATING:	290 HP maximum
	235 HP intermittent (temporary overload)
	200 HP continuous (24 hours/day, 7 days/week)
	Rated at 80°F, 1000-foot altitude
	Throttle stop set for intermittent rating
WEIGHT:	Model 502-21: 335 pounds
	Model 502-22: 350 pounds
FUEL:	Model 502-21: Diesel, unleaded gasoline, JP-4, kerosene, stove oil, etc. Model 502-22: Natural gas (at 60 psig)
LUBE OIL:	7 quarts SAE #10 oil
DUCTING:	Gas turbine inlet and exhaust, each approximately 14-inch diameter
VENTILATION:	Engine compartment: 1,000 cfm required
STARTING:	Electric, 24-volt

# ESTIMATED PERFORMANCE

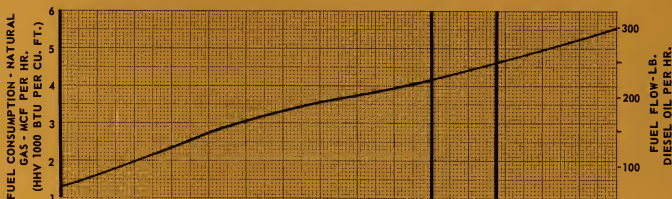
EGT



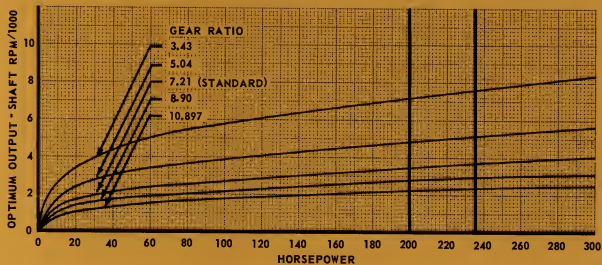
AIR

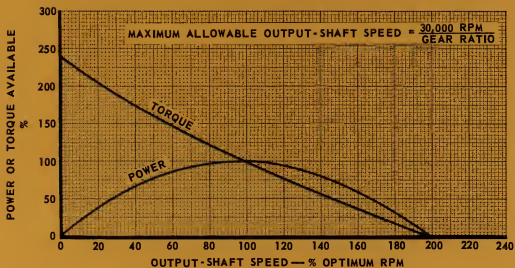
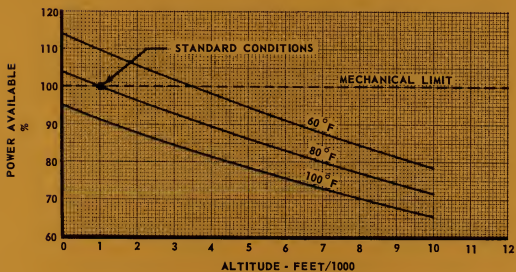
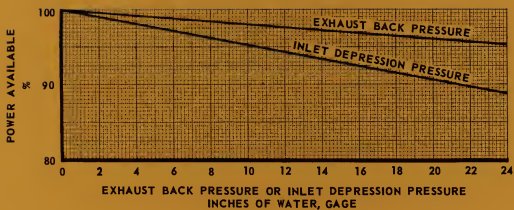


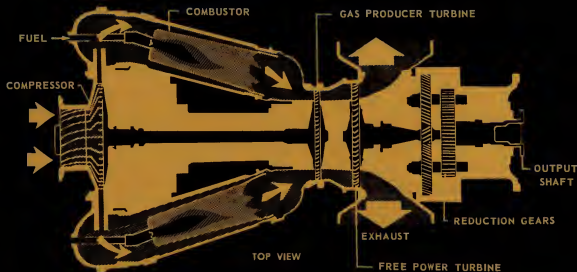
FUEL



RPM







### PRINCIPLE OF OPERATION

Air is compressed, mixed with fuel, burned, and expanded through two turbine wheels. The gas producer turbine wheel drives the compressor. The free power turbine wheel drives the load through reduction gears.

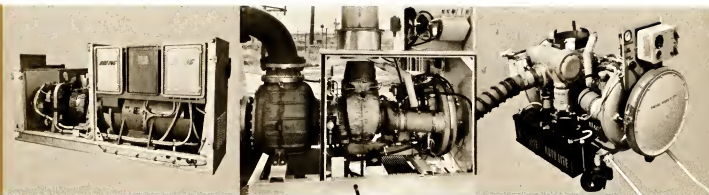
**TORQUE CONVERTER CHARACTERISTIC:** With no mechanical connection between the two turbine wheels, power is transmitted through an air coupling (in effect a torque converter). As output shaft speed slows, torque increases until at stall it is 2.4 times the torque at normal operating speeds. The 502 gas turbine is ideally suited for picking up a load without a clutch and for operating over a wide range of output speeds.

### BASIC ADVANTAGES

<b>SIMPLICITY:</b>	3 operating controls Few parts Air cooled
<b>EASY STARTING:</b>	30 seconds from cold to full power No warm-up Starts at $-65^{\circ}\text{F}$
<b>LOW MAINTENANCE:</b>	Field replacement of rotating parts without rebalancing Replaceable turbine blades
<b>VIBRATION FREE:</b>	Smooth, non-pulsating power
<b>CLEAN EXHAUST:</b>	No lubricating oil contamination

## VERSATILE MODEL 502 GAS TURBINES

More than 1100 Boeing 502 engines in world-wide military and commercial service power generators for minesweepers, pumps for fire boats, and compressors for aircraft starter carts. An attractive industrial power package—200 shaft horsepower plus exhaust heat utilization for steam generation or drying processes—is under development.



D4-1784 MARCH 1, 1962

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